REMARKS

The status of the claims is as follows:

Original:	6, 10, 12-15, 25, 26, 30 and 32
Currently amended:	1, 4, 5, 7-9, 11, 21-24, 27 and 31
Previously amended:	3
Canceled:	2
Withdrawn:	16-20, 28, 29 and 33-36
Previously added:	37

Claims 1 and 3-37 are pending, of which claims 1, 3-15, 21-27, 30-32 and 37 are under active consideration.

The particulars of the claim amendments are described below in the remarks directed to the rejections under 35 U.S.C. § 112. Included in the claim amendments described below are corrections of inadvertent and obvious errors in chemical nomenclature. The corresponding nomenclature corrections have been made in the specification (Items A to J and L to N on pages 2-5). In addition to the nomenclature corrections, the paragraph bridging pages 137-138 in the specification has been amended (Item K on page 4) to recite that a compound of the present invention is useful for inhibiting HIV integrase, not for inhibiting HIV protease. This amendment corrects an obvious and inadvertent error in that it is abundantly clear from the application as a whole that the compounds of the invention are HIV integrase inhibitors.

No new matter has been introduced by any of the changes to the specification and claims.

Restriction Requirement

It is acknowledged that the restriction requirement has been made final and that claims 16-20, 28, 29 and 33-36 have consequently been withdrawn from further consideration.

Rejection under 35 U.S.C. § 112, first paragraph

Claims 25-27 and 30-32 have been rejected under 35 U.S.C. § 112, first paragraph, as not being enabled by the description. Claim 31 has been amended herein to remove the recitation directed to prevention of HIV infection and prevention of AIDS. Accordingly, the rejection has been rendered moot to the extent it asserts that prevention is not enabled. (Notwithstanding the amendment, however, Applicants do not concede the correctness of the Examiner's assertion and reserve the right to pursue prevention claims in a continuing application.) This rejection is traversed with respect to claims 25-27, 30, 31 as amended herein, and 32.

The specification provides a description sufficient to enable one of ordinary skill in the art to use the entire scope of the invention set forth in these claims without undue

HIV integrase inhibitors and that the compounds are useful for inhibiting HIV integrase, for treating HIV infection, for treating AIDS, and for delaying the onset of AIDS (see, e.g., page 3, lines 6-12 and page 139, lines 1-20). The specification describes an assay for determining the level of activity of the compounds of the invention for inhibiting strand transfer by HIV integrase (see Example 193). The specification also describes an assay for measuring the level of activity of the compounds of the invention for inhibiting of HIV replication (see Example 194). The specification further discloses that representative compounds of the invention inhibit integrase strand transfer activity and inhibit HIV replication (see Examples 193 and 194). In addition, the specification describes how to use the compounds of the invention by providing a detailed description of suitable forms (e.g., salts and esters), pharmaceutical compositions and their preparation, routes of administration, and dosages (see page 139, line 21 to page 142, line 26). Using this description, optionally in combination with knowhow available in the art, the person of ordinary skill can without undue experimentation prepare and administer a compound of the invention in a suitable carrier and in the appropriate dosage form and dosage amount to a subject in order to treat HIV infection, inhibit integrase, etc.

The Examiner has asserted that the method of delaying the onset of AIDS set forth in claim 27 is not "remotely enabled". Applicants disagree. As indicated in the first paragraph of page 139 of the application, AIDS is a consequent pathological condition of HIV infection. If HIV infection can be effectively treated, consequent pathological conditions will be delayed. The compounds of the present invention are inhibitors of HIV replication (see Example 194) and thus, in analogy with known HIV antiviral drugs such as indinavir and efavirenz, will be effective in treating HIV infection, and consequently can be fully expected to delay the onset of AIDS.

In view of the foregoing remarks, withdrawal of the section 112 enablement rejection is requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1, 3-15, 21-27 and 30-32 have been rejected under 35 U.S.C. § 112, second paragraph, as not being indefinite for reasons a) to ac) as set forth on pages 3 to 6 of the Office Action. This rejection is traversed with respect to the claims as amended herein. Comments on the reasons for the rejection in view of the amended claims are as follows:

a) The reference to Q^1 has been removed from claim 1.

b) The proviso at the end of claim 1 has been removed.

c) The variable R^t has been incorporated into claim 1 and its definition has been restricted to a heteromonocycle. Corresponding changes have been made in claim 4. More

particularly, the definition of R^t in claim 4 no longer includes naphthyl and thus is restricted to an optionally substituted 5- or 6-membered heteromonocyclic ring. Separate definitions for naphthyl substituents have been added to claim 4. The changes to claim 4 are consistent with the changes in claim 1.

d) As noted in comment c) above, the definition of R^t in claim 4 has been restricted to a heteromonocycle for which there is sufficient antecedent basis for an oxo substituent.

e) Changes corresponding to the changes in claim 4 described in comment c) above have also been made in claims 7 and 8.

f) In paragraph (6) of the definition of R^k in claim 7, the term "hexahydrooxazolo[3,4a]pyrazinyl" has been replaced with "hexahydrooxazolo[3,4-a]pyrazinyl".

g) Comment d) above in reference to claim 4 also applies to claim 7.

h) A definition of n has been added to claim 8.

i) In the definition of Q^2 in claim 8, the "or" in (46) has been removed, and the "and" in (47) has been replaced with "or".

j) In paragraph (6) of the definition of R^k in claim 8, the term "hexahydrooxazolo[3,4a]pyrazinyl" has been replaced with "hexahydrooxazolo[3,4-a]pyrazinyl".

k) The term "$N(R^a)$-C(=O)-$(CH_2)_{1-2}$-C(=O)-$N(R^a)_2$" in the definition of Q^2 in claim 9 has been replaced with "$N(R^a)$-C(=O)-$(CH_2)_{1-2}$-$N(R^a)_2$".

l) The term "$N(R^a)$--SO_2R^k" in the definition of Q^2 in claim 9 has been replaced with "$N(R^a)$-SO_2R^k".

m) The term "-S-C_{1-6} alkyl" in paragraph (3) of the definition of R^k in claim 9 has been replaced with "-S-C_{1-4} alkyl".

n) The term "-C_{1-6} alkyl-$N(R^a)_2$" in paragraph (3) of the definition of R^k in claim 9 has been replaced with "-C_{1-4} alkyl-$N(R^a)_2$".

o) The term "$N(R^a)$--SO_2R^k" in the definition of Q^2 in claim 11 has been replaced with "$N(R^a)$-SO_2R^k".

p) There is sufficient antecedent basis for the limitation "(2-oxo-2-pyrrolidin-1-ylethyl)" in claim 21. This species corresponds to Example 80 in the specification. It is supported by claim 1 wherein Q^2 can be R^k, R^k can be a heterocycle substituted with -C_{0-6} alkyl-C(=O)R^t, and R^t is a heteromonocycle.

q) There is sufficient antecedent basis for the limitation "(pyrimidin-2-ylamino)" in claim 21. This species corresponds to Example 107 in the specification. It is supported by claim 1 wherein Q^2 can be R^k, R^k can be a heterocycle substituted with -N(R^a)R^t, and R^t is a heteromonocycle.

r) There is sufficient antecedent basis for the limitation "(pyridin-2-ylmethyl)" in claim 21. This species corresponds to Example 121 in the specification. It is supported by claim 1 wherein Q^2 can be R^k, R^k can be a heterocycle substituted with -C_{1-4} alkyl substituted with R^t, and R^t is a heteromonocycle.

s) The third and fourth species on page 60 of the previous amendment correspond to Examples 124 and 125 in the specification. As may be seen by reference to the structures in these examples, the term "6-methyl" should be "5-methyl". Claim 21 has been amended to replace "6-methyl" with "5-methyl" and the occurrences of this inadvertent and obvious error in the specification have also been corrected.

t) The fourth species on page 62 of the previous amendment (i.e., the pyrimido[4,5,6-de]-1,6-naphthyridine) corresponds to Example 157 in the specification. This species has been removed from claim 21.

u) The eighth species on page 62 of the previous amendment corresponds to Example 161 in the specification. The name of the species contains obvious and inadvertent errors. Claim 21 has been amended to replace "1-(7-{[4-fluorobenzyl)amino]carbonyl}-8-hydroxy-1,6-naphthyridin-5-yl-L-prolinamide" with "1-(7-{[(4-fluorobenzyl)amino]carbonyl}-8-hydroxy-1,6-naphthyridin-5-yl)-L-prolinamide". The occurrences of this error in the specification have also been corrected.

v) The second to last species of claim 21 in the previous amendment corresponds to Example 188. This species has been removed from claim 21.

w) Claim 22 has been rewritten as an independent claim, rendering this reason for rejection moot. See also comment r) above.

x) Claim 22 has been rewritten as an independent claim, rendering this reason for rejection moot. See also comment p) above.

y) Comment s) above pertaining to claim 21 also applies to claim 22, which has accordingly been amended to replace "6-methyl" with "5-methyl".

z) Claim 22 has been rewritten as an independent claim, rendering this reason for rejection moot. See also comment q) above.

aa) The pyrimido[4,5,6-de]-1,6-naphthyridine species has been removed from claim 23. See also comment t) above.

ab) Comment u) above pertaining to claim 21 also applies to claim 22, which has accordingly been amended to replace "1-(7-{[4-fluorobenzyl)amino]carbonyl}-8-hydroxy-1,6-naphthyridin-5-yl-L-prolinamide" with "1-(7-{[(4-fluorobenzyl)amino]carbonyl}-8-hydroxy-1,6-naphthyridin-5-yl)-L-prolinamide".

ac) Claim 23 does not contain a species with the "dimethylaminosulfonyl" limitation, but claim 24 does. Both claims 23 and 24 have been rewritten as independent claims, thereby rendering this reason for rejection moot. In addition, in claim 24 the species "*N*-(2-[(dimethylaminosulfonyl]-4-fluorobenzyl)-5-(1,1-dioxido-1,2-thiazinan-2-yl)-8-hydroxy-1,6-naphthyridine-7-carboxamide" has been rewritten as "*N*-(2-[(dimethylamino)sulfonyl]-4-fluorobenzyl)-5-(1,1-dioxido-1,2-thiazinan-2-yl)-8-hydroxy-1,6-naphthyridine-7-carboxamide", wherein the insertion of the closing parenthesis after "amino" provides additional clarity.

Obvious errors in the numeration of lists of substituents were detected in claims 4, 7-9 and 11 (see, e.g., paragraphs (1) and (2) in the definition of R^k in claim 4) and have been corrected.

None of the claim revisions described above introduces new matter.

In view of the above-described amendments and accompanying remarks, withdrawal of the section 112 indefiniteness rejection is requested.

Provisional Obviousness-type Double Patenting Rejections

Claims 1, 3-15, 21-27, 30-32 and 37 have been provisionally rejected for obviousness-type double patenting over claims in each of the following copending applications:

A) U.S. Application No. 09/218,537.
B) U.S. Application No. 10/399,083 (Attorney Docket No. 20758YP).
C) U.S. Application No. _____ (Attorney Docket No. 20950Y).
D) U.S. Application No. 10/398,988 (Attorney Docket No. 20759YP).
E) U.S. Application No. 10/398,929 (Attorney Docket No. 20760YP).

F) U.S. Application No. 10/218,537 (Attorney Docket No. 20951Y).

U.S. Application No. 09/218,537 cited in provisional rejection A does not correspond to any of Applicants' copending applications. U.S. Serial No. 09/218,537 instead corresponds to US Patent No. 6,189,626 (Hanseder) which is directed to a method and apparatus for positioning a tool on a mobile machine. It is believed that the reference to "09/" was intended to be "10/" and that rejection A is thus a duplicate of rejection F. It is accordingly requested that rejection A be withdrawn.

In view of the earlier-described amendments to the claims and specification, it is believed that the application is in condition for allowance apart from the provisional double patenting rejections A to F. In accordance with paragraph I.B of MPEP § 804, it is requested that the provisional rejections be withdrawn in this application and that the application be permitted to issue. The Examiner is asked to telephone the undersigned should any minor matters need to be resolved before a Notice of Allowance can be mailed.

Respectfully submitted,

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